REMARKS

Claim Status

Applicants acknowledge, with appreciation, the indication that claims 13-20, 24 and 25 contain allowable subject matter, and would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 1-26 are again presented for examination in unamended form, with claims 1, 2 and 26 being the only independent claims. No new matter has been added. Reconsideration of the application is respectfully requested.

Overview of the Office Action

Claims 1-3, 9-11, 2-23 and 26 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 7,023,019 ("*Maeda*").

Claims 4, 6 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Maeda* in view of U.S. Patent No. 6,861,281 ("*Uemura*").

Claim 8 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Maeda* in view of U.S. Patent No. 6,614,103 ("*Durocher*").

Lastly, claims 5 and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Maeda* in view of U.S. Patent No. 6,787,435 ("*Gibb*").

Applicants have carefully considered the Examiner's rejections, and the comments provided in support thereof, and respectfully disagree with the Examiner's analysis. For the reasons which follow, it is respectfully submitted that all claims of the present application are patentable over the cited references.

Descriptive Summary of the Prior Art

Maeda discloses "a light-emitting semiconductor device including: a blue-light-emitting device having a light-extracting surface and emitting blue light from the light-extracting surface;

and a luminescent layer provided to cover at least the light-extracting surface of the blue-light-emitting device and including a yellow/yellowish phosphor which absorbs blue light emitted by the blue-light-emitting device to emit a yellow/yellowish fluorescence". See col. 8, lines 30-38.

Uemura discloses "a Group III nitride compound semiconductor light-emitting device including a reflective layer which is formed on the back side of a substrate of the device in order to obtain light reflection effects, and to a method for producing the light-emitting device." See col. 1, lines 11-15.

Durocher discloses "semiconductor device packaging and specifically ... plastic packaging of light emitting diode ("LED") arrays". See col. 1, lines 5-7.

Gibb discloses a method for performing and forming backside metallization. See col. 2, lines 27-29.

Patentability of the independent claims over the prior art under 35 U.S.C. §102

Claim 1:

The Examiner (pg. 2) of the Office Action contends that:

> Maeda et al. disclose a process for simultaneously producing a plurality of light-emitting diode light sources of the same kind, each comprising a light-emitting diode chip and a luminescence conversion element, which converts the wavelength of at least part of an electromagnetic radiation emitted by the light-emitting diode chip, where a layer composite with a light-emitting diode layer sequence is applied to a carrier substrate for the plurality of light-emitting diode chips; producing a plurality of trenches in the layer composite (FIG. 57; col. 22, lines 21-36; col. 65, lines 26-45)....

With respect to the foregoing statement, Applicants respectfully assert that *Maeda* fails to teach the claimed invention. That is, *Maeda* fails to teach or suggest at least the following features recited in independent claim 1:

a) a process of simultaneously producing a plurality of light-emitting diode light sources of the same kind,

b) each comprising a light-emitting diode chip and a luminescence conversion element, which converts the wavelength of at least part of an electromagnetic radiation emitted by the light-emitting diode chip,

c) where a layer composite with a light-emitting diode layer sequence is applied to a carrier substrate for the plurality of light-emitting chips, and

d) producing a plurality of trenches in the layer composite.

Fig. 57 of *Maeda*, on which the Examiner expressly relies, teaches a light-emitting system having a structure that includes a large number of blue LEDs 651 and a single luminescent layer 653. *Maeda* (col. 34, lines 1-7) states that "various kinds of displaying systems using light-emitting semiconductor devices (e.g., LED information display terminals, LED traffic lights, LED stoplights of vehicles and LED directional lights) and various kinds of lighting systems (e.g., LED interior/exterior lights, courtesy LED lights, LED emergency lights, and LED surface emitting sources) are herein defined broadly as light-emitting systems". *Maeda* thus provides a definition of the light-emitting systems disclosed therein. Consequently, *Maeda* (Fig. 57) clearly teaches that the plurality of LEDs, in unison, form one single element, i.e., a light-emitting system. Of particular significance is the fact that such a single element is not configured for separation into a plurality of light-emitting diode light sources. *Maeda* thus fails to teach or suggest above-listed feature a) recited in independent claim 1. Therefore, independent claim 1 is patentable over *Maeda* for at least this initial reason.

Moreover, neither the text of *Maeda* cited by the Examiner nor indeed even the entire text of *Maeda* teaches or suggests that a layer composite with a light-emitting diode layer sequence is applied to a carrier substrate for the plurality of LEDs 651 and producing a plurality of trenches

in the layer composite. *Maeda* thus fails to teach or suggest features c) and d) recited in independent claim 1. Independent claim 1 is therefore patentable over *Maeda* for at least these additional reasons.

The Examiner (pgs. 2 thru 3) of the Office Action clearly recognizes that the remaining features recited in claim 1 are not included in the Fig 57 *Maeda* embodiment. However, the Examiner turns to the Fig. 15 *Maeda* embodiment and contends that:

> Maeda et al. disclose ... inserting the layer composite into a cavity of a mold (117), driving a molding compound (118), containing a luminescence conversion material (119), into the cavity in such a way that the trenches are at least partly filled with the molding compound (118), removing the mold (117), and separating the light-emitting diode light sources from the layer composite (FIG. 15(a) & (b); col. 43, lines 1-55).

The Examiner's assertion amounts to nothing more than an attempt to "twist" what is disclosed in *Maeda* so as to meet the limitations recited in Applicants' independent claims. In particular, the Examiner cites col. 43, lines 1-55, Figs. 15 (a) and 15 (b) of *Maeda* to combine the following features with the light-emitting system disclosed in Fig. 57 so as to achieve the claimed invention:

e) inserting the layer composite into a cavity of a mold,

f) driving a molding compound, containing a luminescence conversion material,

g) into the cavity in such a way that the trenches are at least partly filled with the molding compound,

h) removing the mold, and

i) separating the light-emitting diode light sources from the layer composite.

However, *Maeda* (col. 12, lines 3-10) states that "a second structure is a structure in which a mount lead with a cup is further provided, the blue-light-emitting device is mounted in the cup, and the luminescent layer is provided within the cup" and that "a third structure is a

structure in which a casing for placing the blue-light-emitting device therein is further provided, and the luminescent layer may be provided within the casing". *Maeda* thus teaches at least two embodiments, i.e. one embodiment comprising Figs. 15(a) and (b) and another embodiment comprising Fig. 57, each of which are entirely different from each other.

Features e) thru i) are missing from the structure shown in Fig. 57, since the structure disclosed in Figs. 15(a) and (b) is directed to an entirely different embodiment. *Maeda* teaches that the semiconductor device of Figs. 15(a) and (b) encompasses a second structure, whereas the light-emitting system of Fig. 57 encompasses a third structure. *Maeda* (col. 42, line 10 thru col. 43 line 55; Figs. 14 (a) thru 15(b)) teaches the process for fabricating the second structure. The person skilled in the art would not be motivated to modify the embodiment shown in Fig. 57 of *Maeda* based on the embodiment shown in Figs. 15(a) and (b) to achieve a structure having the features e) thru i) recited in independent claim 1, and it would not have been obvious to do so because the features disclosed in connection with Figs. 15 (a) and (b) could not be easily transferred to the light-emitting system of Fig. 57 without considerable effort and financial expenditure. Independent claim 1 is therefore patentable over *Maeda* for this additional reason.

Claim 2:

The Examiner asserts that *Maeda* anticipates the subject matter of independent claim 2 for the reasons associated with independent claim 1. However, independent claim recites that "a plurality of light-emitting chips ... are applied to a common carrier in a regular arrangement", whereas the subject matter of claim 1 recites that "the layer composite with a light-emitting diode layer sequence ... [is] ... applied to the carrier substrate". *Maeda* fails to teach or suggest that "a plurality of light-emitting chips ... are applied to a common carrier in a regular

arrangement." *Maeda* also fails to teach or suggest the other defining features of claim 1, as stated previously, which are also found in claim 2.

Independent claim 2 is, thus, patentable over *Maeda* under 35 U.S.C. §102 and, accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. §102 are in order.

Claim 26:

Independent claim 26 is patentable over *Maeda* for reasons presented above with respect to claim 2.

Moreover, claim 26 includes the additional feature that the LED chips are inserted into a cavity of a mold without being mounted on a housing. That is, the LED chips are not mounted on a housing during the process of inserting the LED chips into a cavity of a mold. *Maeda* also fails to teach or suggest this feature.

Independent claim 26 is, thus, patentable over *Maeda* under 35 U.S.C. §102 and, accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. §102 are in order.

Patentability of the independent claims over the prior art under 35 U.S.C. §103

Maeda (Fig. 57) shows a light-emitting system comprising the luminescent layer 653, which is provided on the entire surfaces of the LEDs 651 and includes two glass substrates (also see col. 65, lines 33-36). *Maeda* further teaches that the luminescent layer 653 is supported by the supporter 654 (see col. 65, lines 36-39). Applicants respectfully assert that a person with ordinary skill in the art would not seek to modify the teachings of *Maeda* in order to obtain the invention recited in independent claims 1, 2 and 26. If the light-emitting system were to be separated into single light-emitting devices, the luminescent layer 653 would no longer be supported, and disadvantageously would no longer be fixed. Absent an impermissible hindsight

reconstruction based on Applicants' own teachings in the instant application, it would not be obvious to the skilled person to subdivide the light-emitting system disclosed in *Maeda*.

Moreover, *Maeda* (Fig. 12(a) to 12(d)) teaches a method for fabricating a light-emitting semiconductor. *Maeda* teaches that the substrate 103 is placed in a mold 107 and a molding resin is poured into the mold 107. In particular, *Maeda* (col. 41, lines 23-29) states that "in general, molding apparatus having a large number of such molds 107 is used to form a large number of white-light-emitting semiconductor devices at a time.... After that, the white-light-emitting semiconductor devices are taken off from the molds 107."

Consequently, it would not be obvious based on the teaching of *Maeda* to produce a plurality of light-emitting diode light sources comprising a luminescence conversion element by using one single mold, because *Maeda* clearly teaches away from using a single mold. For at least these reasons, Applicants assert that independent claims 1, 2 and 26 are patentable over *Maeda*. Therefore, reconsideration and withdrawal of the rejection under 35 U.S.C. §103(a) are respectfully solicited.

Patentability of the independent claims over the prior art under 35 U.S.C. §103

In view of the patentability of independent claims 1, 2 and 26, for the reasons presented above, each of dependent claims 3-25 is respectively patentable therewith over the prior art. Moreover, each of these claims includes features which serve to even more clearly distinguish the invention over the applied references.

The Examiner has combined *Maeda* with *Uemura* to reject dependent claims 4, 6 and 7. The Examiner has also combined *Maeda* with *Durocher* to reject dependent claim 8. Lastly, the Examiner has combined *Maeda* with *Gibb* to reject dependent claims 5 and 12. However, it is clear that *Uemura*, *Durocher* and/or *Gibb*, when applied singly or in combination, fail to bridge

the above-discussed gaps between each of the claimed configurations recited in independent claims 1, 2 and 26 and *Maeda*. Accordingly, dependent claims 4-8 and 12 are patentable over the combination of *Maeda*, *Uemura*, *Durocher* and/or *Gibb* based on their various dependencies on claims 1 or 2. Therefore, reconsideration and withdrawal of the rejections under 35 U.S.C. §103(a) are respectfully requested.

Conclusion

Based on all of the above, it is respectfully submitted that the present application is now in proper condition for allowance. Prompt and favorable action to this effect and early passing of this application to issue are respectfully solicited.

Should the Examiner have any comments, questions, suggestions or objections, the Examiner is respectfully requested to telephone the undersigned in order to facilitate reaching a resolution of any outstanding issues.

Respectfully submitted,
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